SPRING MEETING &
OCN REVIEW COURSE

Solid Tumors

Colorectal, Breast, Prostate & Lung
"The Big 4"

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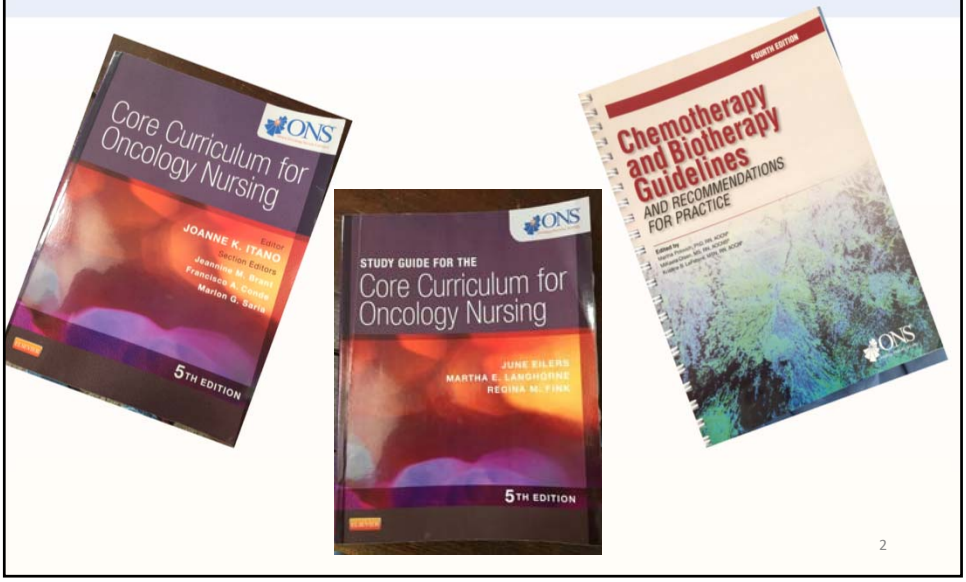

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Objectives: Colorectal, Breast, Prostate & Lung

- Incidence and Mortality Rates
- Pathophysiology
- Classification
- Risk Factors & Screening
- Presentation & Diagnosis
- Staging
- Treatment Modalities
- Nursing Considerations

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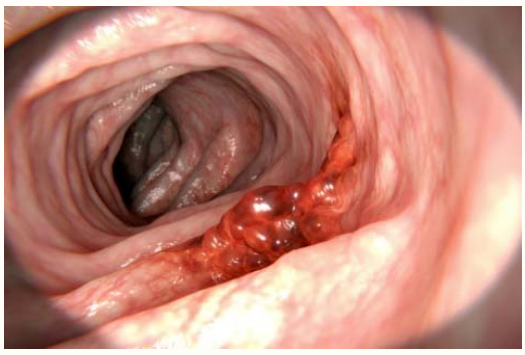
Colon Cancer



Cleveland Clinic

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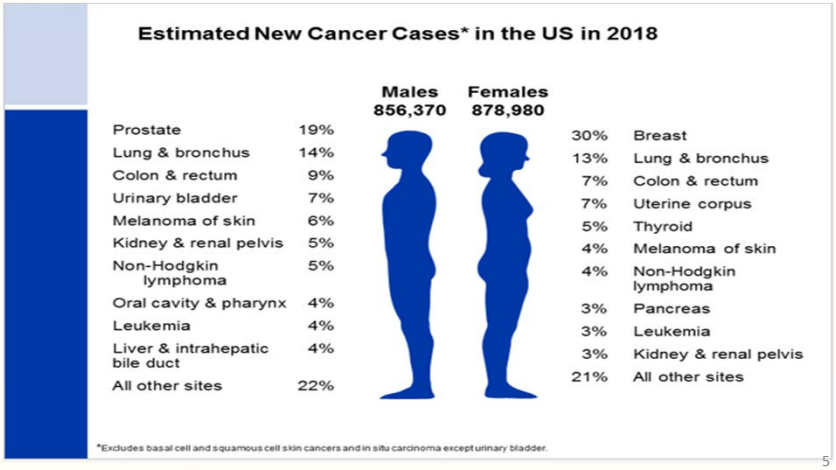
1 in 22 people will be diagnosed with colorectal cancer in their lifetime



American Cancer Society, Cancer Statistics Slide Presentation (2018)

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-Colorectal rates have continued to decrease since the mid 1980s

-Decline from 2004-2013 due to detection and removal of precancerous polyps during CRC screening

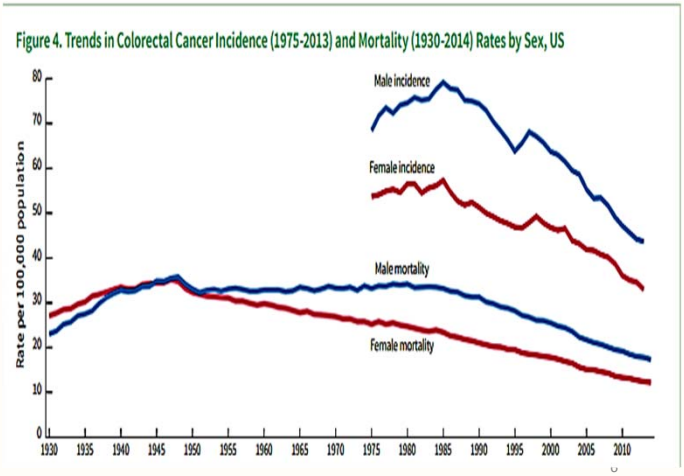
-Slightly higher incidence in men than women

-Decreases in mortality primarily due to increased screening

-Continue to see higher incidence and mortality rates in high poverty areas of US

-Alaska Natives have the highest CRC incidence (91 per 100,000) double that of Non-Hispanic Whites

COLORECTAL CANCER INCIDENCE AND MORTALITY



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Pathophysiology

Colorectal Anatomy and Physiology

- 4 parts: Ascending, Transverse, Descending, Sigmoid Colon
- Storage of feces
- Defecation
- Different symptoms depend on the location of the tumor

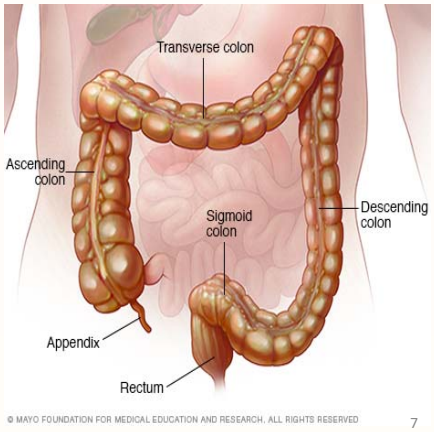

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Image courtesy of Mayo Foundation

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Colon Cancer Classification

Adenocarcinoma

95-98% of colon ca

Arise from glandular cells that line colon

Signet ring

Mucinous

- Lymphomas
- Gastrointestinal Stromal Tumors (GIST)
- Carcinoid Tumors

2-5%

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Oncolink.org

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Colorectal Risk Factors

- Behaviors associated with high-income countries: **sedentary lifestyle, Western diet, and smoking**
- **IBD, colon adenomas, ulcerative colitis, Crohn's**
- **Genetic Factors**: Familial Adenomatous Polyposis (FAP) & Heredity Nonpolyposis Colorectal Cancer (HNPCC)
- Significantly **higher rates** of CRC in **Europe and North America**
- **Higher rates in African American and Alaska Natives**
- Maintaining a healthy weight, being physically active, limiting alcohol consumption, and eating a healthy diet **reduce the risk of CRC by more than one-third.**

Aleksandrova , Pischon ,Jenab, et al. (2014)

Table 2. Relative Risks for Established Colorectal Cancer Risk Factors

	Relative risk*
Factors that increase risk:	
Heredity and medical history	
Family history	
1 first-degree relative[57]	2.2
More than 1 relative[57]	4.0
Relative with diagnosis before age 45[58]	3.9
Inflammatory bowel disease[81]	1.7
Diabetes[87]	1.3
Behavioral factors	
Alcohol consumption (daily average)[145]	
2-3 drinks	1.2
>3 drinks	1.4
Obesity (body mass index ≥30 kg/m²)[104]	1.3
Red meat consumption (100 g/day)[131]	1.2
Processed meat consumption (50 g/day)[131]	1.2
Smoking (ever vs. never)[136]	1.2
Factors that decrease risk:	
Physical activity (colon)[97]	0.7
Dairy consumption (400 g/day)[119]	0.8
Milk consumption (200 g/day)[119]	0.9

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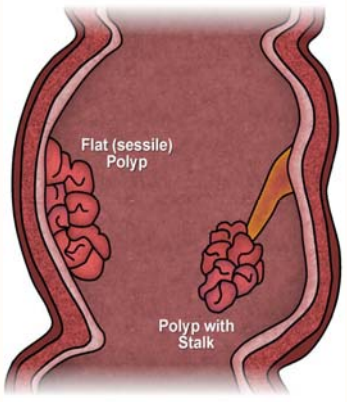
Colorectal Screening

If average risk, screening begins at age 50



ACS recommendations include:

- Colonoscopy every 10 years
- Flexible sigmoidoscopy every 5 years
- Double contrast barium enema every 5 years
- Virtual colonoscopy every 5 years
- Fecal occult blood test (FOBT) every year
- Fecal immunochemical test (FIT) every year

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HNPCC

- Hereditary non-polyposis colorectal cancer
- Also called Lynch Syndrome
- ~2-5 % of colorectal cancer cases
- Risk is 70-90% in families with HNPCC
- Diagnosed by age 45

FAP

- Familial adenomatous polyposis
- ~ 1% of colorectal cancer cases
- Develop hundreds to thousands of benign colon polyps
- 100% chance polyps will develop into cancer if left untreated
- Mutations (changes) in the APC gene
- Diagnosed by age 40

www.genome.gov ; Competency in Cancer Care: Colorectal Cancer Overview

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Colorectal Presentation & Diagnosis

Presentation

- Signs and Symptoms
  - Vague abdominal pain
  - Flatulence
  - Rectal bleeding
  - Changes in bowel movements
  - In advanced disease
    - Weight loss fatigue, palpable mass, RUQ pain, abdominal distention, obstruction

Core Curriculum for Oncology Nursing, 5th edition

Diagnostics

Tests	For what colon stage?
Medical history	All cancer stages
Physical exam	All cancer stages
Total colonoscopy	All cancer stages
Complete blood count	Stage II, III, and IV
Chemistry profile	Stage II, III, and IV
CT with contrast	Stage II, III, and IV
MRI with contrast + CT without contrast	Some stage II and III if CT unclear or CT with contrast isn't an option
MRI with contrast	Some stage IV if CT unclear
PET/CT	Some stage IV if CT with contrast isn't an option
Needle biopsy	Some stage IV
RAS test	Stage IV
BRAF test	Stage IV
MMR or MSI test	All cancer stages

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NCCN guidelines for patients colon cancer, version 1.2017

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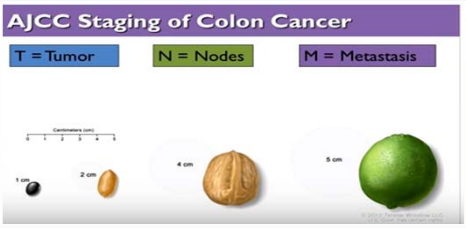
Staging:TNM



TNM Classification			
Tis	The cancer is confined to innermost layer of the colon or rectum	**N0**	There is no spread to lymph nodes
T1	The cancer has grown through the first few layers of the colon or rectum	**N1**	Cancer is found in 1-3 lymph nodes
T2	The cancer has grown into the thick muscular layer of the colon or rectum	**N2**	Cancer is found in four or more lymph nodes
T3	The cancer has grown through the entire colon or rectum wall	**M0**	There is no spread of cancer to distant organ(s)
T4	The cancer has grown through the entire colon or rectum wall and into nearby tissue or organs	**M1**	Cancer is found in distant organ(s)

American Joint Commission on Cancer

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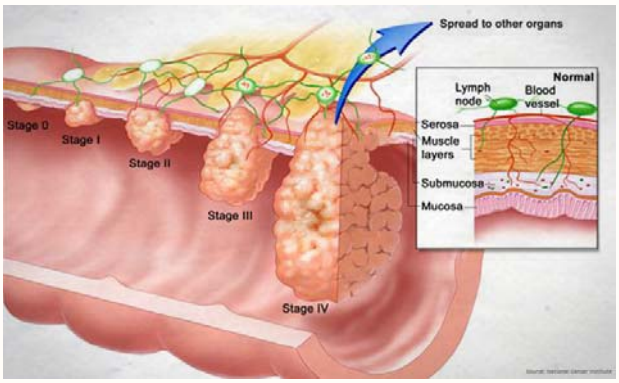
Staging Cont.



Stage	T	N	M
I	T1-2	N0	M0
II	T3-4	N0	M0
III	T1-4	N1-2	M0
IV	Any T	Any N	M1

Metastasis most common to liver, peritoneum, lungs

www.cancerstaging.org

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Treatment of Colorectal Cancer

nccn.org

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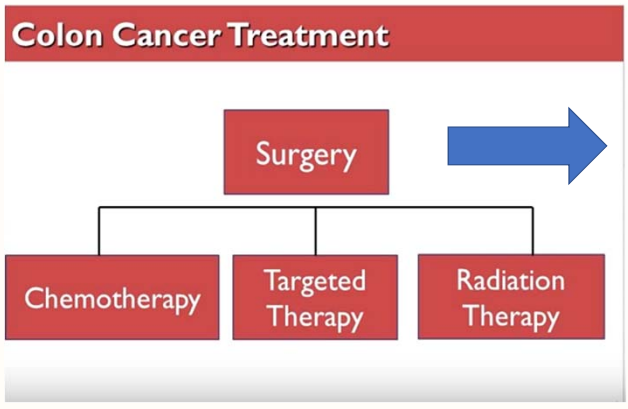
Treatment cont.



Right-sided colon cancer-right hemicolectomy
Transverse colon cancer-extended right hemicolectomy
Left-sided colon cancer-left hemicolectomy
Sigmoid colon cancers-anterior sigmoid colectomy
Rectal cancer-low anterior resection (allows for sphincter preservation

www.cancer.gov

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Treatment cont.: Systemic Therapy for Colon Cancer

Chemotherapy Types

5-FU/LV	5-FU = fluorouracil	–
	LV = leucovorin*	–
Capecitabine	Capecitabine	Xeloda®
CAPEOX	CAPE = capecitabine	Xeloda®
	OX = oxaliplatin	Eloxatin®
FOLFIRI	FOL = leucovorin*	–
	F = fluorouracil	–
	IRI = irinotecan	Camptosar®
FOLFOX	FOL = leucovorin*	–
	F = fluorouracil	–
	OX = oxaliplatin	Eloxatin®
FOLFOXIRI	FOL = leucovorin*	–
	F = fluorouracil	–
	OX = oxaliplatin	Eloxatin®
	IRI = irinotecan	Camptosar®
Irinotecan	Irinotecan	Camptosar®
Trifluridine + tipiracil	Trifluridine + tipiracil	Lonsurf®

Targeted Therapies

Generic (chemical) name	Brand name (sold as)
Bevacizumab	Avastin®
Cetuximab	Erbitux®
Panitumumab	Vectibix®
Ramucirumab	Cyramza®
Regorafenib	Stivarga®
Ziv-aflibercept	Zaltrap®

Chemotherapy not indicated for stage I disease, unclear benefits for pts with stage II

NCCN Guidelines for Patients: Colon Cancer, version 1.2017

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Treatment cont.

Stage II & III Primary Treatments for Colon Cancer

Pathologic stage	MMR status	Risk level	What are the options?
Stage IIA	MSI-H or dMMR	Any level	• Start follow-up testing
Stage IIA	MSS, MSI-L, or normal MMR	Not high risk	• Clinical trial • Start follow-up testing • Consider capecitabine or 5-FU/LV
Stage IIA	MSS, MSI-L, or normal MMR	High risk	• Capecitabine or 5-FU/LV • FOLFOX or CAPEOX • Clinical trial
Stage IIB	Any status	Any level	
Stage IIC	Any status	Any level	• Start follow-up testing
Stage III	Any status	Any level	• FOLFOX or CAPEOX • Capecitabine • 5-FU/LV

NCCN Guidelines for Patients: Colon cancer version 1.2017

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Treatment cont.

Stage IV Treatments for Colon Cancer

What are the options?
• FOLFIRI ± bevacizumab
• FOLFOX ± bevacizumab
• CAPEOX ± bevacizumab
• FOLFOXIRI ± bevacizumab
• For left-sided tumors with normal *KRAS/NRAS* genes: ◦ FOLFIRI + panitumumab ◦ FOLFIRI + cetuximab ◦ FOLFOX + panitumumab

NCCN Guidelines for Patients: Colon cancer version 1.2017

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Treatment Cont.

Rectal Cancer Treatment

Stage I:

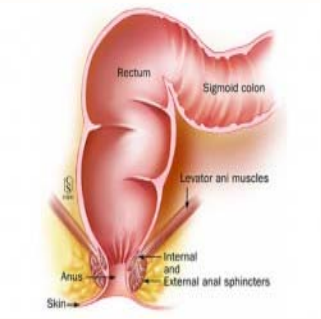
- Surgery

Stage II & III:

- Chemotherapy + Surgery = Adjuvant Chemotherapy

Stage IV:

- Combination of surgery and chemotherapy +/- radiation
- If surgery not possible: Chemotherapy, Targeted Therapies



University of Texas, MD Anderson Cancer Center

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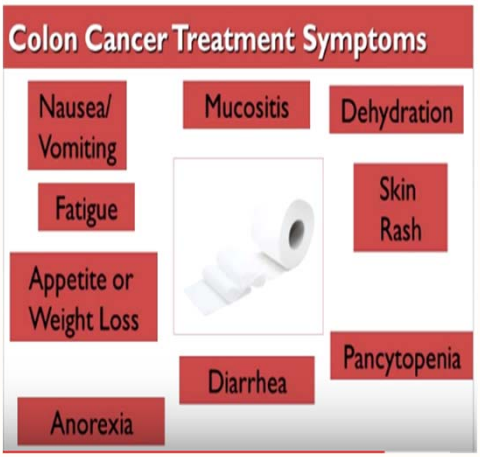
Nursing Considerations

- **Surgery**: Pain mgmt., self care and body image concerns, ostomy mgmt. www.ostomy.org
- **Chemotherapy/Targeted Therapy**:
- **Radiation Therapy**:
  - Diarrhea/changes in bowel habits
  - Skin reaction/breakdown
  - Fatigue
  - Bowel Necrosis
  - Issues with Sexuality



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Breast Cancer

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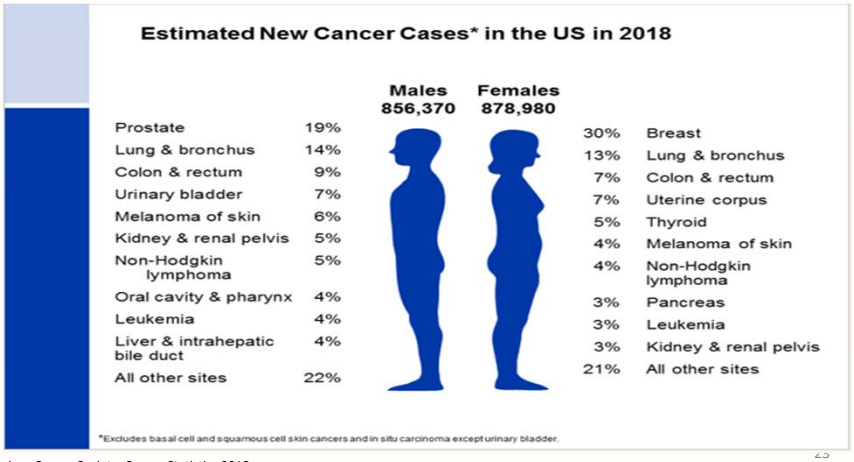
1 in 8 women will develop invasive breast cancer over the course of their lifetime



American Cancer Society: Cancer Statistics 2018

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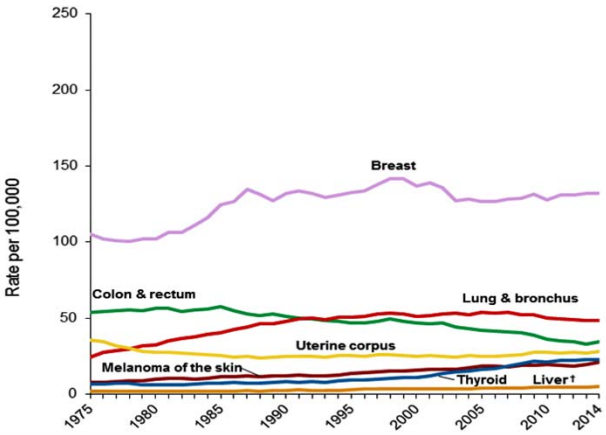
-Slight increase in breast cancer rates over the last 10 years

-Increase is seen entirely among nonwhite women

-7% decline from 2002-2003 due to reduction in hormone replacement therapy usage

Trends in Cancer Incidence Rates* Among Females, US, 1975-2014



American Cancer Society, Cancer Statistics Slide Presentation (2018)

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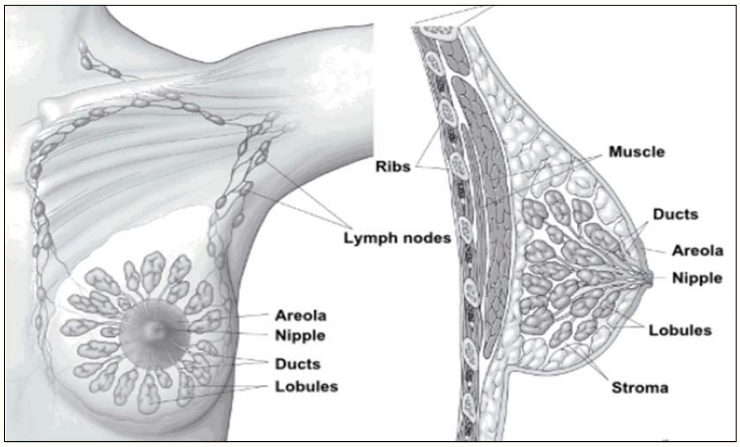
Pathophysiology of Breast Cancer



American Cancer Society

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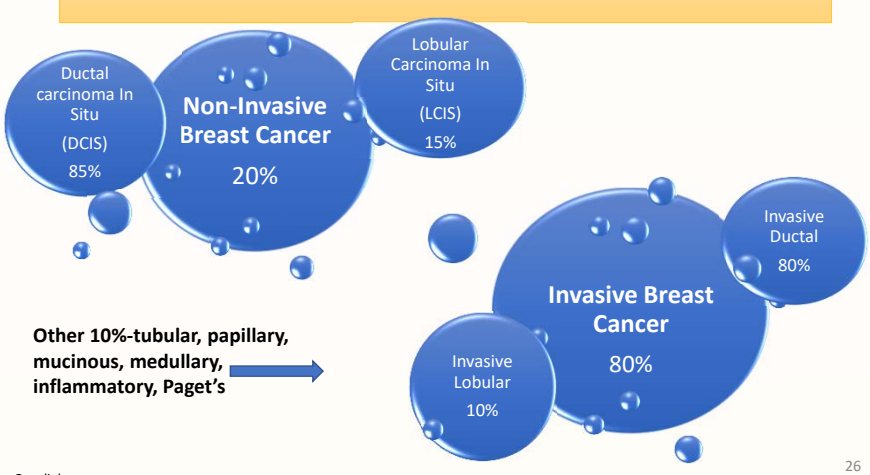
Breast Cancer Classification



Other 10%-tubular, papillary, mucinous, medullary, inflammatory, Paget's

Oncolink.org

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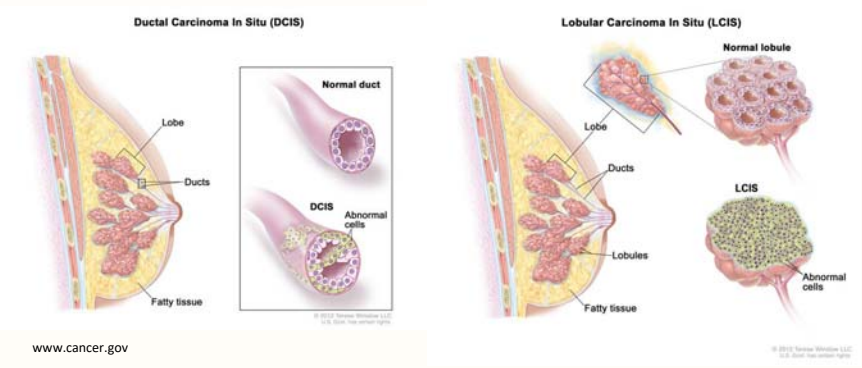
Ductal & Lobular Carcinoma In Situ



www.cancer.gov

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Inflammatory Breast Cancer

- Aggressive
- Fast growing
- Mastitis
- Dermatitis
- Classified as Stage III

www.hopkinsmedicine.org

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Competency in Cancer Care: Colorectal Cancer Overview

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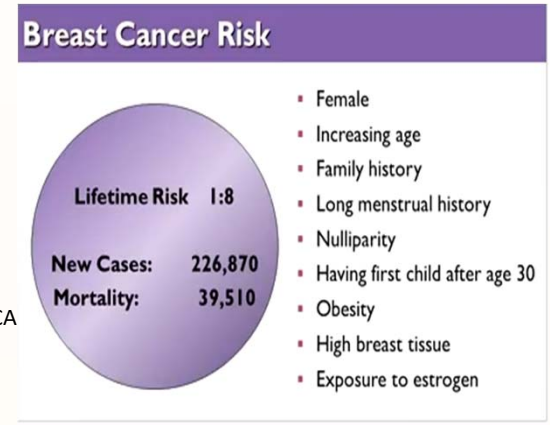
Breast Cancer Risk factors

- Being **female** is the greatest risk factor 100 times more common in women than men
- 75% of all breast cancer in **post menopausal** women
- **Early menarche**
- **Low** number of **births**
- **Breastfeeding lowers** risk
- Use of **hormone replacement** therapy, **oral contraceptives**
- History of **XRT to chest**
- **Genetic factors** (BRCA 1 & 2): BRCA 1 accounts for 20% of all familial breast cancers
- History of **benign breast lesions** such as DCIS, LCIS, ALH, ADH



cancer.gov

Core Curriculum for Oncology Nursing, 5th Edition

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Genetics

- ~ 5-10% of breast cancers are inherited
  - ~ 80% caused by mutations in the *BRCA1* or *BRCA2* genes
  - with *BRCA* mutation -- 50% to 85% lifetime risk
- *BRCA 1 & 2* mutation carriers
  - preventive surgery
  - chemoprevention

    Tamoxifen, Raloxifene, & Aromatase Inhibitors
- History of ovarian or colon cancer

BRCA 1

- 15-45% risk of developing ovarian ca
- Increase risk for prostate ca for males
- Younger age at diagnosis
- Triple negative breast cancer
- Ashkenazi Jewish descent
- Links with pancreatic cancer

BRCA 2

- Lifetime risk of developing breast cancer up to 80%
- Increased risk of pancreatic, melanoma, and ovarian cancers

Core Curriculum for Oncology Nursing, 5th Edition; Competency in Cancer Care, Breast Cancer Overview

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Breast Cancer Screening

	Comparison of Breast Cancer Screening Guidelines (January 2016)					
Recommended	**ACOG**	**ACR/SBI**	**ACS**	**AMA**	**NCCN**	**USPSTF**
Age to Start Mammograms	40	40	45 Individual choice 40-44	40	40	50
Age to Stop Mammograms	Annual as long as woman is in good health	When life expectancy is <5-7 years	When life expectancy <10 years	When life expectancy <10 years	Upper age limit not established	74
Interval	Annual	Annual	Annual 45-54; 1-2 years 55+	Annual	Annual	2 years
Tomo-synthesis (3-D Mammography)	Further study to confirm whether cost-effective replacement for digital mammography alone as first-line screening	No longer investigational; represents an advance in breast imaging	Improvement in detection, lower chance of recall	Silent	Promising; definitive studies pending	Insufficient evidence to support routine use; grade "I"
Notes		Tomosynthesis shown to improve key screening parameters compared to digital mammography	**40-44** Opportunity to begin screening; **45-54** Annual exam; **55+** 1-2 years Transition to biennial or opportunity for annual exam	Eligible at age 40, if they choose and their doctors agree; annual at 50		**40-49** Grade "C" Individual decision; **50-74** Grade "B" biennial screening; **75+** Grade "I" Insufficient Evidence

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High Risk Screening

According the American Cancer Society….

Women who are **high risk** should get an **MRI and a mammogram** starting at age **30**. These risks include:

- Have a lifetime risk of breast cancer of about 20% to 25% or greater, according to risk assessment tools that are based mainly on family history (see below)
- Have a known BRCA1 or BRCA2 gene mutation (based on having had genetic testing)
- Have a first-degree relative (parent, brother, sister, or child) with a *BRCA1* or *BRCA2* gene mutation, and have not had genetic testing themselves
- Had radiation therapy to the chest when they were between the ages of 10 and 30 years
- Have Li-Fraumeni syndrome, Cowden syndrome, or Bannayan-Riley-Ruvalcaba syndrome, or have first-degree relatives with one of these syndromes

The American Cancer Society recommends against MRI screening for women whose lifetime risk of breast cancer is less than 15%.

American Cancer Society, 2018

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Presentation & Diagnosis

Presentation:

- Most found on screening mammogram
- Palpable lump or thickening in breast and/or axilla
- Dimpling of skin or nipple retraction
- Nipple discharge
- Breast asymmetry

Diagnostics:

- Diagnostic mammogram + ultrasound + biopsy
- Breast MRI
- Evaluation for metastatic disease: bone scan, CT (CAP), PET/CT, brain MRI
- CBCD, CMP, tumor markers
- Oncotype DX and MammaPrint

Types of biopsies:

1. Core needle biopsy
2. Stereotactic vacuum-assisted breast bx
3. Fine-needle aspiration (FNA)
4. Incisional biopsy
5. Excisional biopsy

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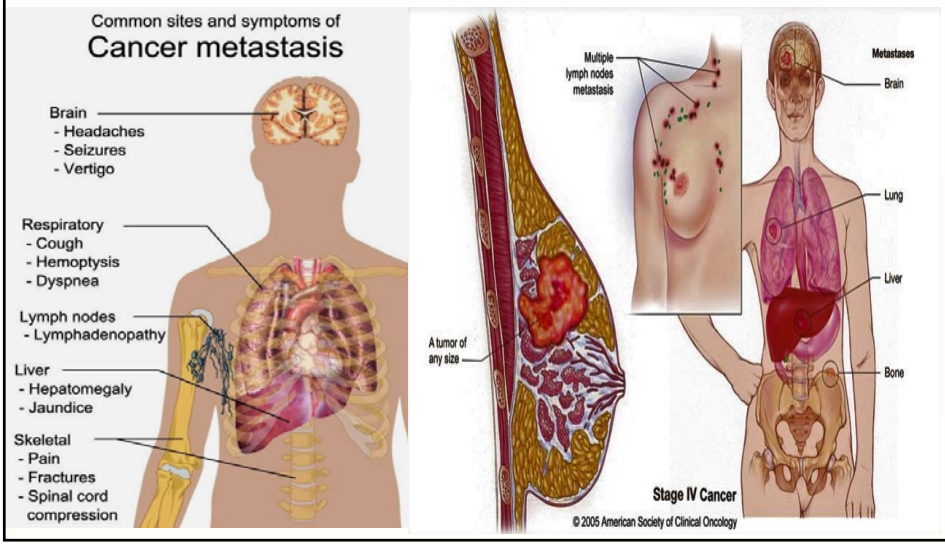

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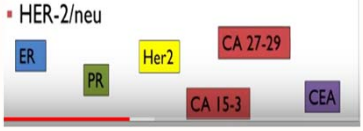
Staging

Diagnostic Markers for Breast Cancer

- Estrogen receptor (ER)
- Progesterone receptor (PR)
- Carcinoembryonic antigen (CEA)
- CA 15-3 and CA 27-29
- HER-2/neu



Histologic grading:
1= well differentiated
2=moderately differentiated
3=poorly differentiated

TNM (simplified)

T0	No evidence of primary tumor
Tis	Carcinoma in situ
T1	Tumor ≤20 mm in greatest dimension
T2	Tumor >20 mm but ≤50 mm in greatest dimension
T3	Tumor >50 mm in greatest dimension
T4	Tumor of any size with direct extension to the chest wall and/or to the skin

pN0	No regional lymph node metastasis identified histologically
pN1	Micrometastasis, metastases in 1–3 axillary lymph nodes
pN2	Metastases in 4–9 axillary lymph nodes
pN3	Metastases in ≥10 axillary lymph nodes, or metastases in infraclavicular (level III axillary) lymph nodes
M0	No clinical or radiographic evidence of distant metastases
M1	Distant detectable metastases

American Joint Commission on Cancer & Competency in Cancer Care, Breast Cancer Overview

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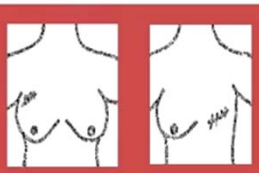
Treatment/Surgery

Comparison of Breast Cancer Surgery



	Removes only the malignant tumor and small margin of surrounding normal tissue	Removes the entire breast	Removes some lymph nodes from underarm	Includes radiation therapy following surgery
Breast Conservation Therapy	Yes	No	Yes	Yes
Modified radical mastectomy	No	Yes	Yes	No

Surgical Options:

- Mastectomy
- Lumpectomy
- +/-Sentinel lymph node bx or Lymph node dissection

Breast Reconstruction:

- Implants alone
- Tissue expanders with implants later
- Latissimus dorsi alone or with implants
- TRAM, DIEP
- Pedicle or gluteal flap

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Core Curriculum for Oncology Nursing, 5th edition

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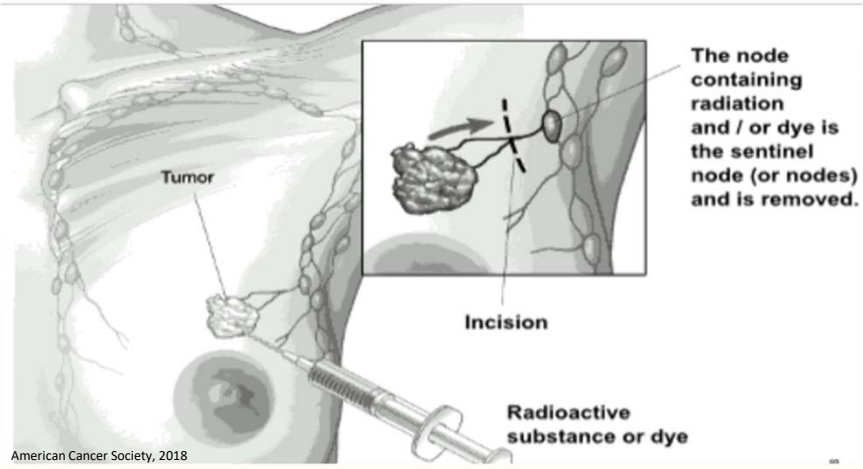
Sentinel Lymph Node Biopsy



American Cancer Society, 2018

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Treatment cont.

Breast Cancer Treatment: Radiation Therapy

- Before, sequentially with chemotherapy, or following chemotherapy
- Chest wall radiotherapy
- ~ 6 weeks
- External beam: outside the body
- Internal: uses implants inside the body
- Total of 6000 cGy
- Side effects - skin reactions and fatigue

Competency in Cancer Care; Breast Cancer Overview

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NCCN 2017 Criteria for Adjuvant Chemotherapy Stage I & II

Hormone Receptor Negative (**Triple Negative**)

Size of breast tumor	Size of lymph node tumors	Do I need chemotherapy?
0.5 cm or smaller	No tumors	Unlikely
	Tiny (≤2.0 mm) tumors	Consider chemotherapy
0.51 to 1.0 cm	None or tiny (≤2.0 mm) tumors	Consider chemotherapy
Larger than 1.0 cm	Any size	Yes

Hormone Receptor **Positive**

Size of breast tumor	Size of lymph node tumors	RT-PCR score	Do I need chemotherapy?
0.5 cm or smaller	No tumors	–	Unlikely
	Tiny (≤2.0 mm) tumors	–	Consider chemotherapy
0.51 or larger	None or tiny (≤2.0 mm) tumors	Not done	Consider chemotherapy
		<18	Unlikely
		18–30	Consider chemotherapy
		≥31	Yes
Any size	Larger than 2.0 mm	–	Yes

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NCCN: 2017 Guidelines for HER 2 - and HER 2 + Adjuvant Regimens

HER2-

Preferred regimens	Schedule	Total time
Dose-dense AC	Four 14-day cycles	4 months
then paclitaxel	Four 14-day cycles	
Dose-dense AC	Four 14-day cycles	5 months
then weekly paclitaxel	Twelve 7-day cycles	
TC	Four 21-day cycles	3 months

HER2+

Preferred regimens	Schedule	Total time
AC	Four 21-day cycles	1 year and 3 months
then paclitaxel with pertuzumab and trastuzumab	Four 21-day cycles	
then trastuzumab	Every 21 days to complete 1 year on trastuzumab	
AC	Four 21-day cycles	1 year and 3 months
then paclitaxel with trastuzumab	Twelve 7-day cycles	
then trastuzumab	Every 7 or 21 days to complete 1 year on trastuzumab	
Dose-dense AC	Four 14-day cycles	1 year and 2 months
then paclitaxel with trastuzumab	Four 14-day cycles with weekly trastuzumab	
then trastuzumab	Every 7 or 21 days to complete 1 year on trastuzumab	
TCH	Six 21-day cycles	1 year
then trastuzumab	Every 21 days to complete 1 year on trastuzumab	
TCH + pertuzumab	Six 21-day cycles	1 year
then trastuzumab	Every 21 days to complete 1 year on trastuzumab	

Abbreviations: AC = doxorubicin + cyclophosphamide; TCH = docetaxel + carboplatin + trastuzumab

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Stage IV Treatments: Cancer Drugs for Hormone Related Growth

Type	Subtype	Generic name	Brand name	How they work
Antiestrogens	SERD	Fulvestrant	Faslodex®	Prevent key signals for cancer cell growth
	SERM	Tamoxifen citrate	–	
		Toremifene citrate	Fareston®	
Aromatase inhibitors	Non-steroid	Anastrozole	Arimidex®	Lower estrogen levels
		Letrozole	Femara®	
	Steroid	Exemestane	Aromasin®	
Hormones	Estrogen	Ethinyl estradiol	–	Unknown
	Androgen	Fluoxymesterone	Androxy™, Halotestin®	
	Progesterone	Megestrol acetate	Megace®	
Kinase inhibitors	CDK inhibitor	Palbociclib	Ibrance®	Stop key signals for cancer cell growth
		Ribociclib	Kisqali®	
	mTOR inhibitor	Everolimus	Afinitor®	
Ovarian suppression	LHRH agonist	Goserelin acetate	Zoladex®	Lower estrogen levels
		Leuprolide acetate	Lupron Depot®	

NCCN Guidelines, 2017

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NCCN Recommendations for HER 2-positive cancers; Stage IV

Preferred first-line agents	Length of a cycle
Trastuzumab + pertuzumab + docetaxel	21 days
Paclitaxel	21 days
with trastuzumab	7 or 21 days
and pertuzumab	7 or 21 days

Regimens after trastuzumab use	Length of a cycle
Lapatinib	Daily (not given in cycles)
with capecitabine	21 days
Capecitabine	21 days
with trastuzumab	7 or 21 days
Lapatinib	Daily (not given in cycles)
with trastuzumab	7 or 21 days
Trastuzumab + other agents	Depends on agents

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NCCN Recommendations for HER 2-negative cancers; Stage IV

Preferred single agents	Length of a cycle
Doxorubicin	21 days
Pegylated liposomal doxorubicin	28 days
Paclitaxel	21 days
Capecitabine	21 days
Gemcitabine	28 days
Vinorelbine	7 days
Eribulin	21 days

*** No trastuzumab for HER 2-negative breast cancers**

Combination regimens	Length of a cycle
CAF/FAC (cyclophosphamide/doxorubicin/fluorouracil)	21 (FAC) or 28 (CAF) days
FEC (fluorouracil/epirubicin/cyclophosphamide)	28 days
AC (doxorubicin/cyclophosphamide)	21 days
EC (epirubicin/cyclophosphamide)	21 days
CMF (cyclophosphamide/methotrexate/fluorouracil)	28 days
Docetaxel/capecitabine	21 days
GT (gemcitabine/paclitaxel)	21 days
Gemcitabine/carboplatin	21 days
Paclitaxel/bevacizumab	28 days

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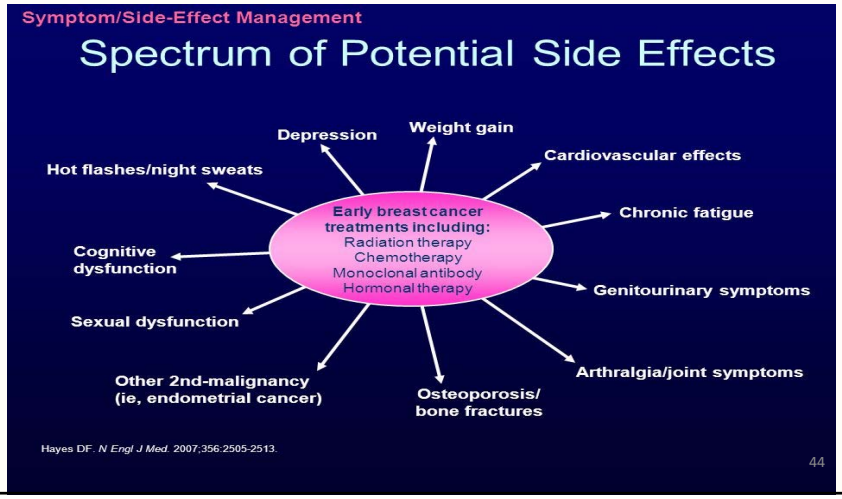
Nursing Considerations



SPRING MEETING &
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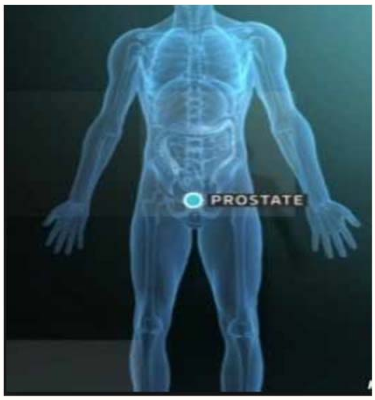
Prostate Cancer



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OCN REVIEW COURSE

1 in 6 men will be diagnosed with prostate cancer in their lifetime

Estimated New Cancer Cases* in the US in 2018

		Males 856,370	Females 878,980		
Prostate	19%			30%	Breast
Lung & bronchus	14%			13%	Lung & bronchus
Colon & rectum	9%			7%	Colon & rectum
Urinary bladder	7%			7%	Uterine corpus
Melanoma of skin	6%			5%	Thyroid
Kidney & renal pelvis	5%			4%	Melanoma of skin
Non-Hodgkin lymphoma	5%			4%	Non-Hodgkin lymphoma
Oral cavity & pharynx	4%			3%	Pancreas
Leukemia	4%			3%	Leukemia
Liver & intrahepatic bile duct	4%			3%	Kidney & renal pelvis
All other sites	22%			21%	All other sites

*Excludes basal cell and squamous cell skin cancers and in situ carcinoma except urinary bladder.

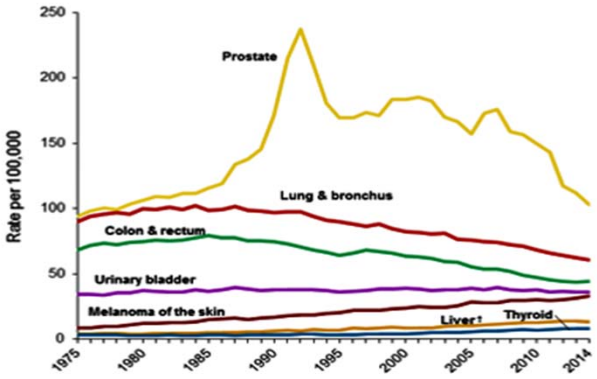
American Cancer Society; Cancer Statistics 2018

SPRING MEETING & OCN REVIEW COURSE

-Incidence rates for prostate cancer have changed substantially since 1975.

-Reflects changing patterns for prostate-specific antigen (PSA) blood testing to check for asymptomatic prostate cancer

Trends in Cancer Incidence Rates* Among Males, US, 1975-2014



American Cancer Society, Cancer Statistics Slide Presentation (2018)

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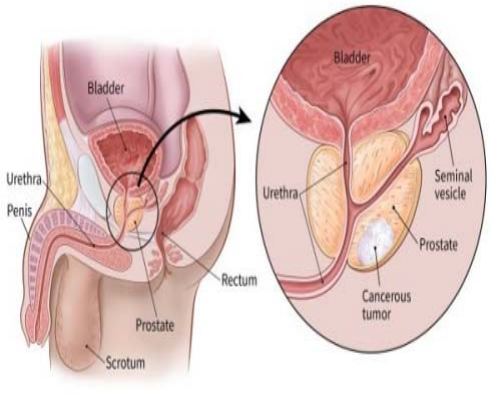
Pathophysiology

- Part of the male reproductive system
- Helps make and store seminal fluid
- Approx. 3cm in the adult male
- Located in the pelvis under the urinary bladder and in front of the rectum
- Surrounds the urethra
- Because of the location prostate diseases can effect urination, ejaculation, and rarely defecation



Divided into 3 zones: transition, central, & **peripheral (70%-80% of prostate cancers)**

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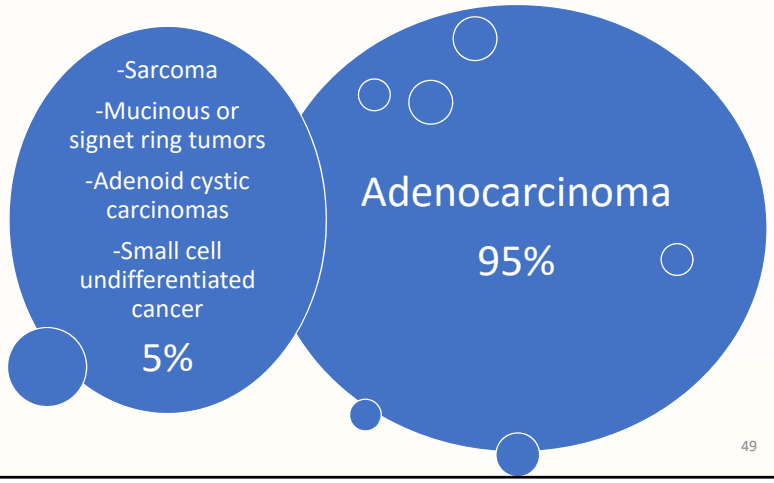
Prostate Cancer Classification



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Prostate Cancer Risk Factors

- More than **75%** of prostate cancers are diagnosed in **men 65 yrs. or older**
- **Higher mortality** rates in **Western countries** (high fat diets)
- **Highest incidence** and mortality rates among **African Americans**
- Vitamins **E, D, selenium and lycopene** linked to **low incidence**
- **Farming and cadmium exposure increased risk**
- Genetic factors: **HPC1** thought to be responsible for **33% of all hereditary prostate cancer**
- **1st and 2nd degree** relatives with prostate cancer **increases risk**
- Mutations in BRCA1 and BRCA2 genes

- Age
- Race
- Dietary factors
- Occupational exposure
- Genetic factors

Core Curriculum for Oncology Nursing, 5th edition

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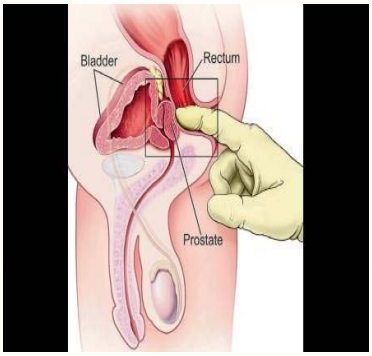
Prostate Cancer Screening

Digital Rectal Exam (DRE)



Prostate Specific Antigen

The amount of PSA that is present in blood

0 - 2.5 ng/dl	Low risk
2.6 – 10 ng/dl	Slight/moderate risk
10.1 – 19.9 ng/dl	Moderate risk
20 ng/dl	High risk

PSA density: PSA level in comparison to the size of the prostate
PSA velocity: How much PSA levels change within a period of time

SPRING MEETING & OCN REVIEW COURSE

Presentation & Diagnosis

Presentation

- **Early disease**
  - Asymptomatic
  - Found on physical exam
  - Dysuria, hesitancy, nocturia, urgency
- **Advanced disease**
  - Back pain
  - Hip pain
  - Lethargy

Metastatic Sites: Bone, Lung, Liver

Prostate Cancer Diagnosis

- PSA level
- Digital Rectal Exam (DRE)
- Transrectal Ultrasound (TRUS)
- Biopsy
  - performed with TRUS for guidance
  - six specimens from both sides of the prostate
- Pelvic MRI
- Bone Scan

Competency in Cancer Care, Prostate Cancer Overview

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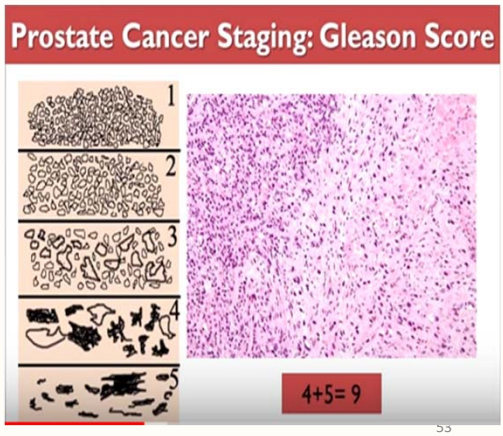
Prostate Staging & Classification

Gleason score

- **Grades 1-5**
- **1=looks like normal prostate tissue**
- **5=very abnormal tissue**
- **2 grades are assigned describing the 2 areas that make up most of the cancer**
- **These 2 grades are added to = the Gleason Score**
- **The 1st # assigned is the grade that is most common in the tumor**



Gleason, 1977

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Prostate Staging cont.

NCCN Prostate Cancer Risk Classification: Risk Groups

Very low	Low	Intermediate	High	Very high
• T1c • Gleason score ≤6 /Gleason grade group 1 • Fewer than 3 prostate biopsy cores positive, ≤50% cancer in each core • PSA <10 ng/mL • PSA density <0.15 ng/mL/g	•T1-T2a • Gleason score ≤6/ Gleason grade group 1 • PSA <10 ng/mL	• T2b-T2c or • Gleason score 3+4=7/ Gleason grade group 2 or • Gleason score 4+3=7/ Gleason grade group 3 or • PSA 10–20 ng/mL	• T3a or • Gleason score 8/ Gleason grade group 4 or • Gleason score 9–10/ Gleason grade group 5 • PSA >20 ng/mL	• T3b-T4 or • Primary Gleason pattern 5/ Gleason grade group 5 or • >4 cores with Gleason score 8–10/ Gleason grade group 4 or 5

Risk Classification based on TNM Staging

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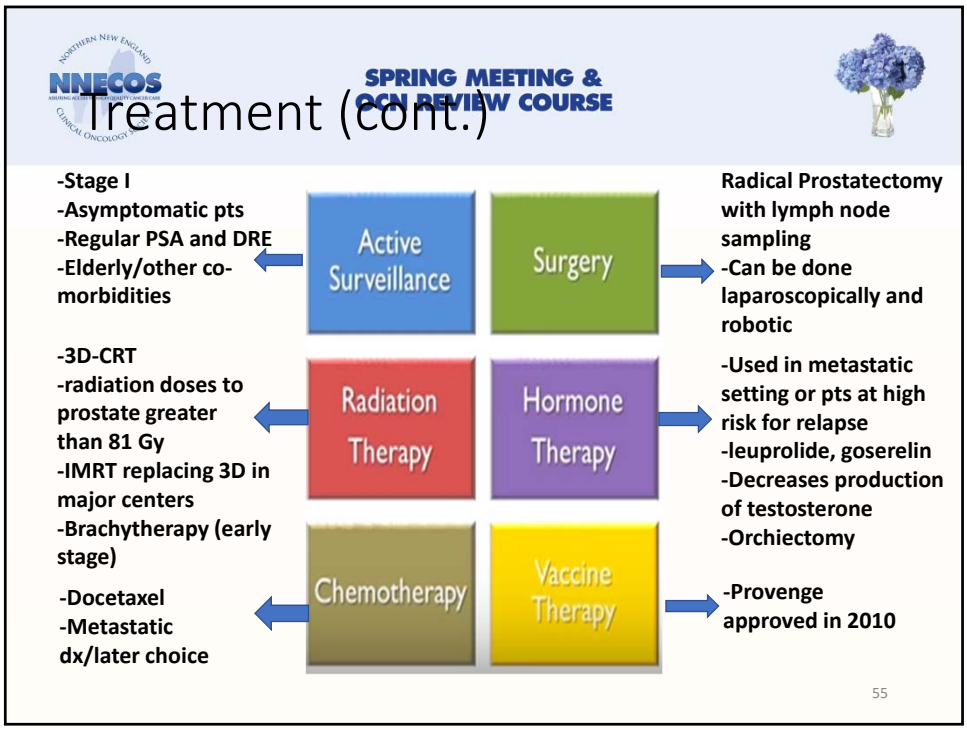
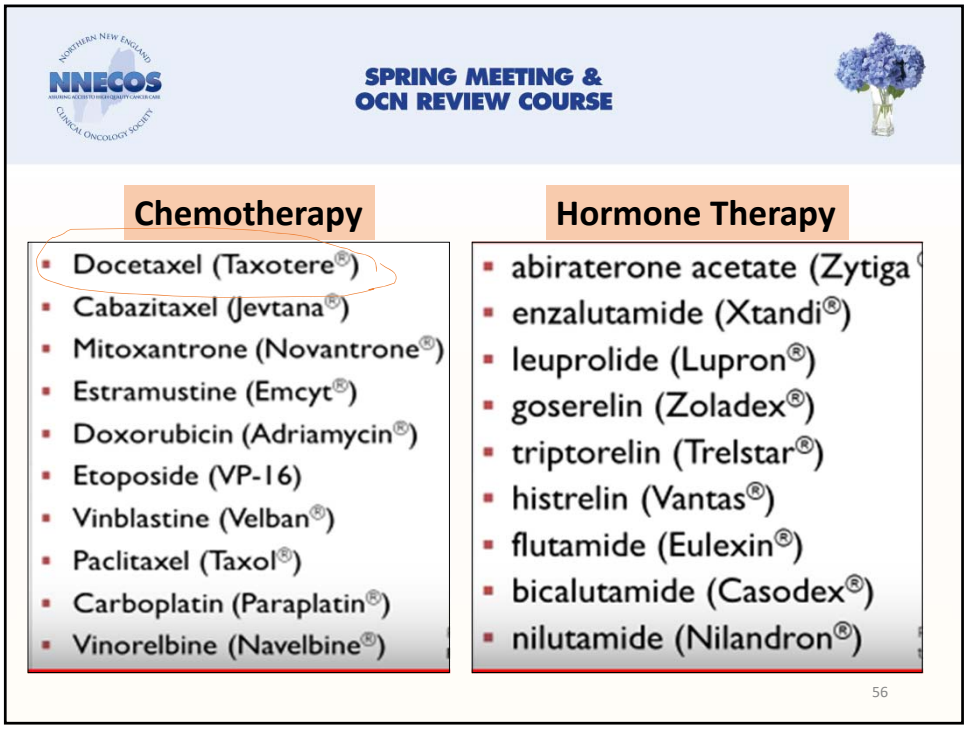
Treatment (cont.)





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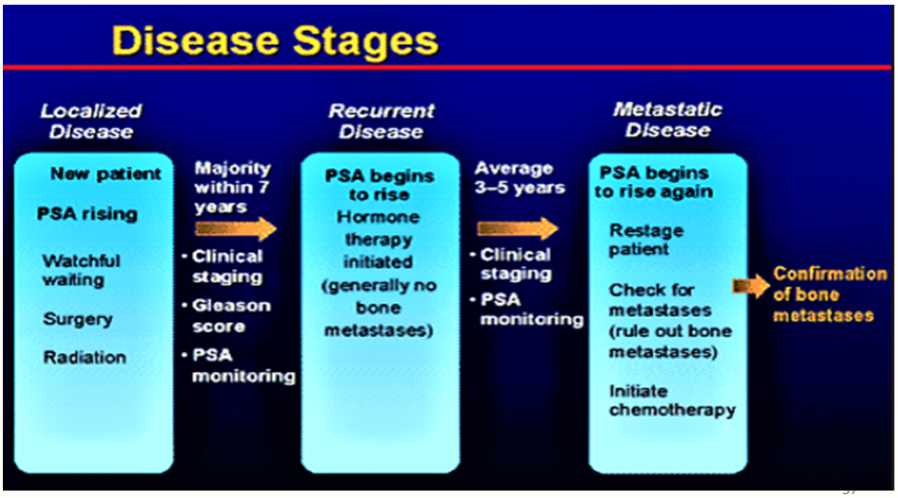
Prostate Treatment



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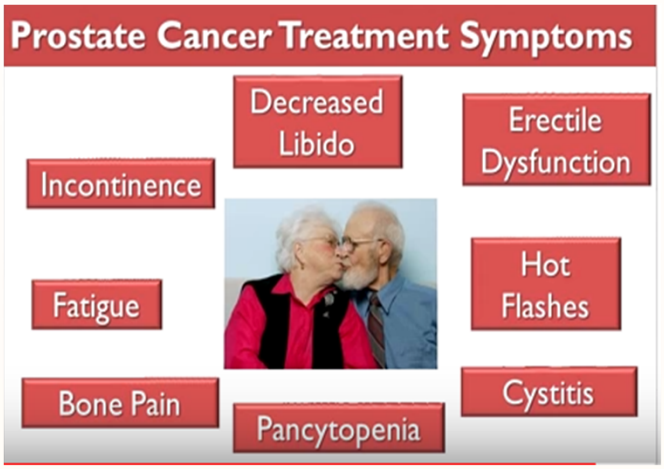
Nursing Considerations: Prostate



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Competency in Cancer Care; Prostate Cancer Overview

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Lung Cancer

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2nd most common cancer in men and women

Estimated New Cancer Cases* in the US in 2018

	Males 856,370	Females 878,980	
Prostate	19%		
Lung & bronchus	14%		13% Lung & bronchus
Colon & rectum	9%		7% Colon & rectum
Urinary bladder	7%		
Melanoma of skin	6%		
Kidney & renal pelvis	5%		
Non-Hodgkin lymphoma	5%		4% Non-Hodgkin lymphoma
Oral cavity & pharynx	4%		
Leukemia	4%		3% Leukemia
Liver & intrahepatic bile duct	4%		
All other sites	22%		21% All other sites
			30% Breast
			7% Uterine corpus
			5% Thyroid
			4% Melanoma of skin
			3% Pancreas
			3% Kidney & renal pelvis

*Excludes basal cell and squamous cell skin cancers and in situ carcinoma except urinary bladder.

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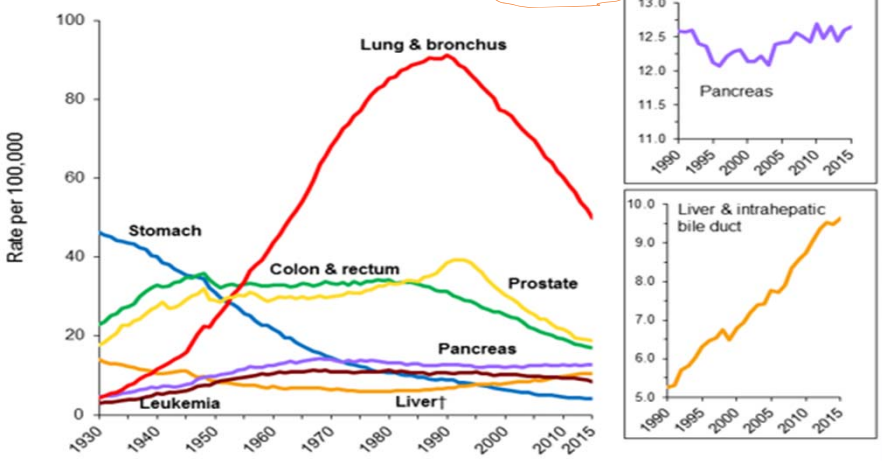
Trends in Cancer Death Rates* Among Males, US,1930-2015



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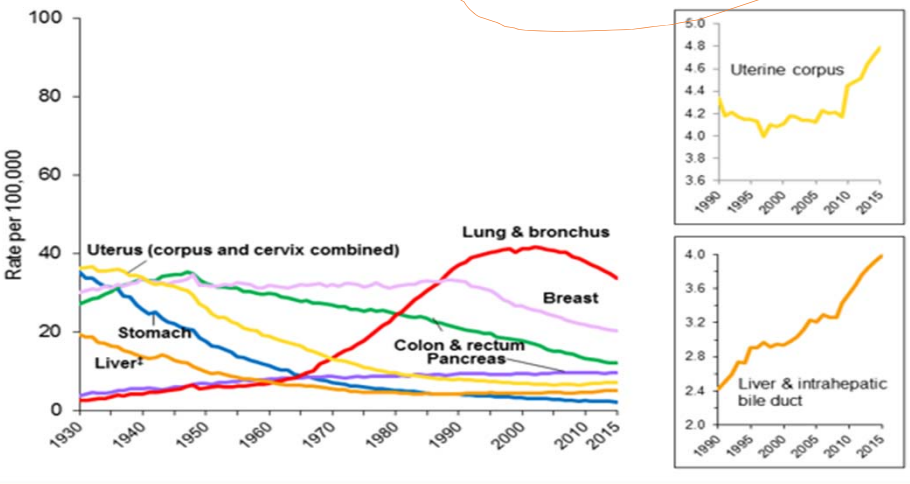
Trends in Cancer Death Rates* Among Females, US,1930-2015



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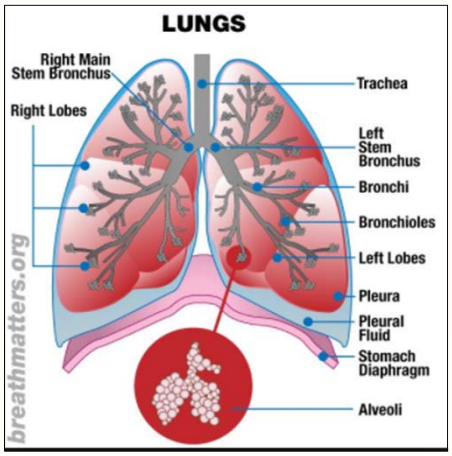
Pathophysiology



Function:

- Respiration(exchange of gases)
- Repel infection
- Water balance
- Produce hormones

*Right lung has 3 lobes and left lung has 2 lobes

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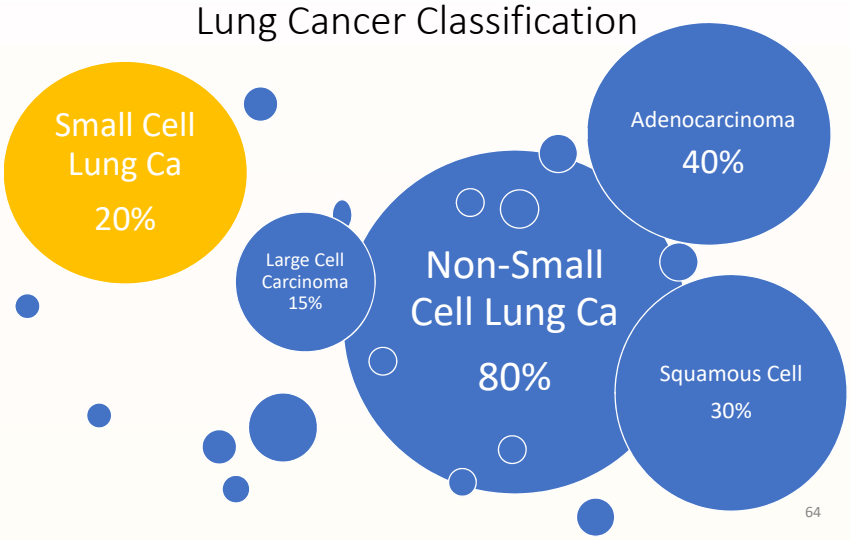
Lung Cancer Classification



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Lung Cancer Risk Factors

Tobacco Usage

- Number of cigarettes smoked
- Age when smoking began
- Duration of smoking
- Tar/nicotine content of cigarettes smoked
- Smoking other than cigarettes

Risk Factors for Lung Cancer

- Smoking cigarettes, pipes, or cigars, now or in past
- Exposure to secondhand smoke
- Treatment with radiation to breast or chest
- Exposure to asbestos, radon, chromium, nickel, arsenic, soot, or tar
- Living where there is air pollution
- Other lung diseases
- Family member with lung cancer

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Competency in Cancer Care; Lung Cancer Overview

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Lung Cancer Screening

Current screening guidelines for high risk individuals

- > than 30 pk/yr history
- apparently healthy
- age 55 to 74

annual screening with low-dose chest CT

Number of packs per day
x years of smoking
= pack years

For example:
1 pack a day
x 20 years
= 20 pack years

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Competency in Cancer Care: Lung Cancer Overview & Core Curriculum for Oncology Nursing, 5th Edition

SPRING MEETING & OCN REVIEW COURSE

Lung Cancer Presentation and Diagnosis

Symptoms:

- Cough (that doesn't go away)
- Dyspnea
- Hemoptysis
- Pain in shoulder, back, chest, arm
- Dysphagia
- Loss of appetite/weight loss
- Fatigue
- Repeated respiratory infections

LABS:

- CBC
- CMP
- No tumor markers for lung ca
- Molecular testing for EGFR and ALK

Core Curriculum for Oncology Nurses; 5th edition

Diagnostic Tests for Lung Cancer

- Sputum Cytology
- Chest X-ray
- CT Scan
- PET/CT
- Pulmonary Function Test
- Performance Status
- MRI

- Bronchoscopy
- Mediastinoscopy
- EBUS-TBNA Thoracoscopy
- Thoracentesis
- Transthoracic Fine Needle Biopsy
- Pericardiocentesis
- Node Biopsy
- Video-assisted thoracic surgery

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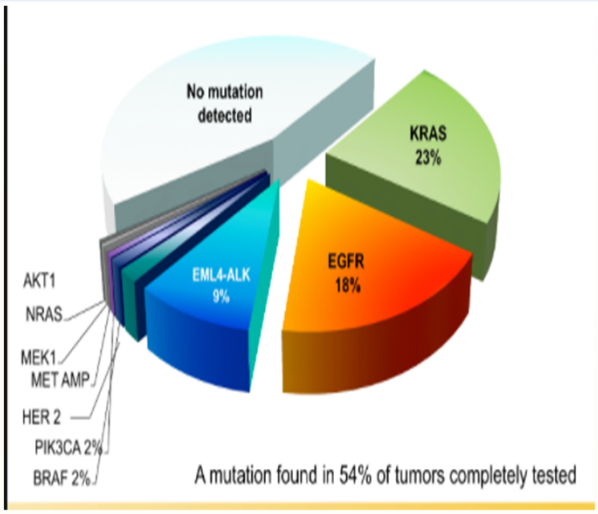

Genetics

- Growing field
- New targeted drugs being introduced daily

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TNM Staging

Metastasis:
- Brain
- Liver
- Adrenal glands
- Bone

ANATOMIC STAGE/PROGNOSTIC GROUPS			
Occult Carcinoma	TX	N0	M0
Stage 0	Tis	N0	M0
Stage IA	T1a	N0	M0
	T1b	N0	M0
Stage IB	T2a	N0	M0
Stage IIA	T2b	N0	M0
	T1a	N1	M0
	T1b	N1	M0
	T2a	N1	M0
Stage IIB	T2b	N1	M0
	T3	N0	M0
Stage IIIA	T1a	N2	M0
	T1b	N2	M0
	T2a	N2	M0
	T2b	N2	M0
	T3	N1	M0
	T3	N2	M0
	T4	N0	M0
	T4	N1	M0
Stage IIIB	T1a	N3	M0
	T1b	N3	M0
	T2a	N3	M0
	T2b	N3	M0
	T3	N3	M0
	T4	N2	M0
	T4	N3	M0
Stage IV	Any T	Any N	M1a
	Any T	Any N	M1b

Cancer.org

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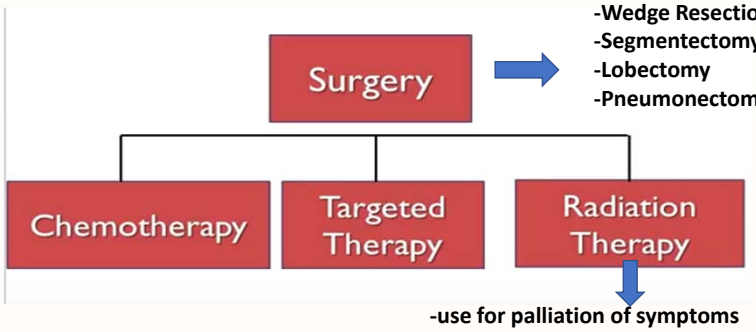
Treatment Modalities for Lung Cancer



-Wedge Resection
-Segmentectomy
-Lobectomy
-Pneumonectomy

-use for palliation of symptoms
-positive surgical margins
-Intensity-modulated radiotherapy
-60-70 gray (Gy) in 2-Gy fractions
-stereotactic ablative radiotherapy (SRT)
-radiofrequency ablation (RFA) for brain me

Consider prophylactic cranial irradiation (PCI) in SCLC

Competency in Cancer Care: Lung Cancer Overview

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Systemic Treatment Lung Cancer

- Cisplatin
- Carboplatin
- Paclitaxel (Taxol)
- Albumin-bound paclitaxel (nab-paclitaxel, Abraxane)
- Docetaxel (Taxotere)
- Gemcitabine (Gemzar)
- Vinorelbine (Navelbine)
- Irinotecan (Camptosar)
- Etoposide (VP-16)
- Vinblastine
- Pemetrexed (Alimta)

- Cisplatin-based combination treatment is the standard regimen for advanced disease

- Pemetrexed is superior for squamous cell lung cancers

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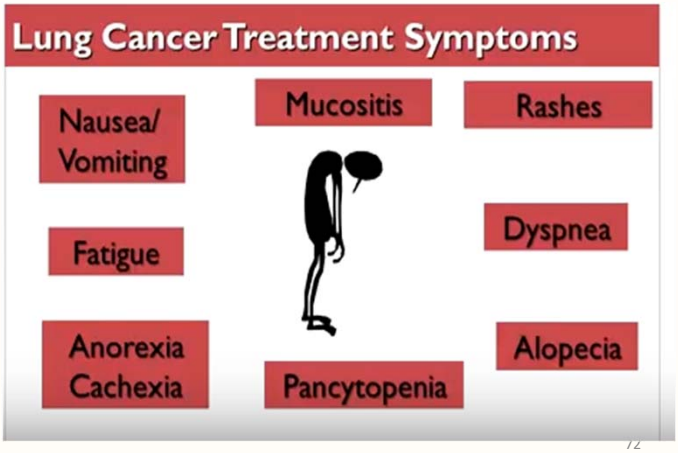
Core Curriculum for Oncology Nursing; 5th edition

SPRING MEETING & OCN REVIEW COURSE

Nursing Considerations

Watch For:

- **Hypercalcemia**
- **SIADH**
- **Spinal Cord Compression**
- **Superior Vena Cava Syndrome**
- **Cardiac Tamponade**
- **Uncontrolled pain**



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Competency in Cancer Care; Lung Cancer Overview & Core Curriculum for Oncology Nursing, 5th Edition

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Resources

- **Core Curriculum** for Oncology Nursing, 5th Edition & **Study Guide** by ONS
- **Chemotherapy and Biotherapy Guidelines** by ONS
- American Cancer Society: Cancer Statistics Slide Presentation 2018 **(Statistics)**
- www.genome.gov **(Genetics)**
- Oncolink.org (**General Information**)
- https://www.nccn.org/patients/guidelines/cancers.aspx (**NCCN** patient guides for latest treatments)
- https://cancerstaging.org/references-tools/quickreferences/Pages/default.aspx (**AJCC/TNM** staging posters)
- Nursing Oncology Education Programs "**Competency in Cancer Care**" YouTube videos. Developed by Texas Nurses Association

73

Let's practice……

Which of the following is considered a late symptom of colorectal cancer?

A. Flatulence
B. Change in bowel habits
C. Blood in the stool
D. Weight loss

74

Answer: D

Late stage signs and symptoms include anorexia, anemia and weight loss

75

A 39-yr-old woman who has been treated for BRCA-2 positive breast cancer is planning a vacation to Florida. The nurse is most concerned with her increased risk of

A. malignant melanoma
B. ovarian cancer
C. fallopian tube cancer
D. pancreatic cancer

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Answer: A

A patient with a BRCA-2 breast cancer is at risk for all of these cancers. While in Florida, she will likely be exposed to high temperatures and increased ultraviolet rays, making malignant melanoma her most significant risk at this time.

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Which of the following statements applies to prostate cancer?

A. 35% of all cancers in men, usually beginning in the peripheral zone. Early bone metastasis is common.
B. 50% of all cancers in men. A total of 50% of prostate cancers are adenocarcinomas. Survival rates have decreased steadily since 1974
C. 30% of all cancers in men. A total of 95% of prostate cancers are adenocarcinomas. Malignant growth initially spreads to the bladder and peritoneum.
D. 40% of all cancers in men. A total of 55% of prostate cancers are sarcomas, mucinous, or signet ring tumors. Prostate cancer has early spread via hematologic and lymphatic pathways to the lung.

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Answer: C

Thirty percent of all male cancers are prostate cancers. The most common form is adenocarcinoma, comprising 95% of all prostate cancers. There is hematologic or lymphatic spread to the seminal vesicles, bladder, peritoneum and pelvic lymph nodes.

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If an individual is a candidate, surgery is the treatment of choice for lung cancer because

A. Lung cancer is often a localized disease.
B. Chemotherapy is ineffective for lung cancer.
C. Surgery offers the only option for cure.
D. Surgery has few complications and few side effects.

80

Answer: C

Despite side effects and the potential for serious complications, in early-stage lung cancer, the only curative modality is surgery. Lung cancer is often detected at a stage with disseminated disease, and there are limited response rates for chemotherapeutic agents.

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